

## REMARKS

No claims are amended, cancelled, or added. Thus, Claims 100-131 are pending in the application.

### I. SUMMARY OF EXAMINER INTERVIEW

On May 6, 2011, Applicants' representatives Marcel Bingham and Deborah Caswell met via teleconference with Examiner Harper to discuss the future of this application. Mr. Bingham provided background information on ETL systems and compared the claims to the Kornelson reference. The discussion that ensued helped applicants to decide how to proceed in this case. Examiner is thanked for granting the interview and for providing the requested insight.

### II. ISSUES RELATED TO THE PRIOR ART – SECTION 103 – KORNELSON AND THOMSON

Claims 100-131 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over “Kornelson” (US 7139779) in view of “Thomson” (US 2004/0034615). The rejection is respectfully traversed.

The following is provided for understanding the claims. Various features of various claims are described for purposes of exposition, but not for the purpose of arguing any single claim that expresses or requires that feature. The limitations of any particular claim, and distinguishing features thereof, are explained later.

The claimed ETL system is comprised of a source database, a source ETL application, a module, a target ETL application, and a target database. The source ETL application generates the module that comprises metadata that describes the structure of database objects to be transported from the source database to the target database. The metadata in the generated module is based on source database metadata. As a result of

reading the module, the target ETL application:

1. modifies ETL application metadata
2. modifies target database metadata
3. incorporates into the target database a copy of the source database tablespaces that store the data to be transported.

Kornelson describes a system for reading log files and loading the data into a database. Kornelson is directed to generating, from a dataflow diagram, an ETL application, metafile, and installation script for installing the generated application and metafile. In our recent interview, the Examiner analogized Kornelson's installation script to the claimed module because the Examiner interprets the installation script to modify the ETL application metadata. Even if it were reasonable to interpret Kornelson's installation script as modifying ETL application metadata, Kornelson's installation script does not cause a target ETL application to perform the other functions described above such as modifying target database metadata or incorporating tablespaces into the target database. Thus, the installation script cannot be considered equivalent to the claimed module.

Kornelson's application, metafile, and installation script are generated prior to moving data from log files into the target database. Kornelson describes a single application, not a source ETL application and a target ETL application. Even if Kornelson's application could be considered analogous to the claimed source ETL application, Kornelson's application does not cause a module to be generated, as claimed.

In addition to these conceptual distinctions, there are several specific features of the claims that are not taught or suggested by Kornelson in combination with Thomson:

1. Kornelson does not teach or suggest modifying target database metadata.

2. Kornelson does not teach or suggest incorporating tablespaces; fact and dimension tables are not tablespaces.
3. Kornelson does not mention any metadata that defines tablespaces.

These distinctions are explained more fully below.

**1. Kornelson does not teach or suggest modifying target database metadata.**

Claims 100 and 116 each recites in part:

*“wherein reading said module causes said target ETL application to perform:*

*...*

***modifying said target database metadata based on said metadata read from said module to describe a structure of said one or more database objects of said source database”***

No combination of Kornelson and Thomson teaches or suggests the quoted features.

The Office Action relies on Kornelson at col. 8, lines 20-35 to allegedly teach modifying said target database metadata based on said metadata read from said module to describe a structure of said one or more database objects of said source database.

However, the claims recite that the modifying is performed by said target ETL application. The Office Action appears to equate Kornelson’s ETL toolset that is used to generate the ETL application with the ETL application itself. This is not correct. The ETL toolset creates the ETL application and the ETL application performs extraction, transformation, and loading of the data. Furthermore, neither the ETL toolset, nor the generated ETL application modifies **target database metadata** to describe a structure of database objects of said source database. Although Kornelson may place the log file data in fact and dimension tables that are merged with tables already in the target database, the table merge process does not modify the **structure** of the tables within the target database. Kornelson’s aggregation computer that prepares the source data for loading into the target database creates fact and dimension tables based on the target database

structure that already exists. Thus, there is no need to modify target database metadata to describe the structure of database objects from the source database.

**2. Kornelson does not teach or suggest incorporating tablespaces; fact and dimension tables are not tablespaces.**

Claims 100 and 116 each also recites in part:

*“wherein said source database metadata identifies a set of tablespaces that store data for the one or more database objects to be transported, and said set of tablespaces is in a format that is understandable by the target database;”*

Neither Kornelson nor Thomson teaches or suggests the quoted feature.

The Office Action relies on the passage at Column 7, lines 5-35 of Kornelsen to allegedly teach the entire quoted feature. The cited passage describes the creation of fact files and dimension files that are constructed from data extracted from the log files. However, there is no teaching or suggestion in the cited passage or anywhere else in Kornelson of tablespaces, much less source metadata that identifies tablespaces.

The claims recite tablespaces, and the Office Action alleges that Kornelson teaches tablespaces. That is factually incorrect. The Office Action does not provide any further explanation as to how and whether Kornelson or Thomson teach tablespaces, and thus, the above Office Action response is not responsive to Applicants’ arguments.

In addition, as noted above, the Office Action considers the source database to be the same as a log file. Thus, to consistently interpret the claim, the Office Action must also consider the source database metadata to be data about the log file. Information **about** the log file is not contained within the log file itself. There is no teaching or suggestion that the format of the logged data is self-describing. Thus, the metadata about the log file must be configured outside of the log file. There is also no teaching or suggestion that metadata about the log file identifies a tablespace, as claimed. Even if it

were reasonable to consider a log file to be the same as a tablespace, the log file [tablespace] is not in a format that is understandable by the target database, as claimed. Kornelson's system **transforms** the data read from the log file into database tables. The data read from the log file only becomes understandable to the target system after its format has been transformed. If the data in the log file [tablespace] were already understandable to the target database, there would be no need to perform a transformation on the data.

The cited passage also describes the construction of fact tables and dimension tables in the target data warehouse database, but the fact tables and dimension tables neither identify nor comprise a set of tablespaces. Even if fact tables and dimension tables identified tablespaces, fact tables and dimension tables [source database metadata] do not contain data about the log file [source database]. Likewise, even if it were reasonable to consider a fact table or dimension table to be the same as a tablespace, neither a fact nor a dimension table comprises data to be transported. Kornelson's fact and dimension table may be an intermediate representation of the data during transport, but they do not store database objects **to be transported**, as claimed. A person of ordinary skill in the art would have interpreted "data to be transported in an ETL system" to mean the source of the data to be moved from one database system to another. In Kornelson, the source data is the data from the log files, not the data in the fact or dimension tables.

Thomson does not, nor is it alleged to, teach tablespaces. There is no mention of tablespaces in Thomson, nor is there any other equivalent structure in Thomson that teaches or suggests tablespaces.

In, the Response to Arguments section, the Office Action states:

*"Initially examiner notes that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references...Moreover the 'Test of obviousness is not whether features of secondary reference may be bodily incorporated into primary reference's structure, nor whether claimed invention is expressly suggested in any one or all of references; rather test is what combined teachings of references would have suggested to those of ordinary skill in the art."*

However, to establish prima facie obviousness of a claimed invention, **all the claim limitations must be taught or suggested by the prior art.** *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). Obviousness under 35 U.S.C. § 103(a) is ultimately a legal question, **based on underlying factual determinations.** *See Richardson-Vicks Inc. v. Upjohn Co.*, 122 F.3d 1476, 1479 (Fed. Cir. 1997). The factual determinations underpinning the legal conclusion of obviousness include 1) the scope and content of the prior art, 2) the level of ordinary skill in the art, 3) the differences between the claimed invention and the prior art, and 4) evidence of secondary factors, also known as objective indicia of non-obviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). In the present matter, the Examiner has made clearly erroneous factual findings regarding the scope and content of the prior art, and in particular, what certain cited prior art references teach. Therefore, the Examiner's analysis and the obviousness rejection based thereon are invalid.

### **3. Kornelson does not mention any metadata that defines tablespaces.**

Also, Claims 100 and 116 each further recites in part:

*"a target database system incorporating a copy of said set of tablespaces that store said data for at least one of said one or more database objects, wherein incorporating said copy of said set of tablespaces includes **modifying the target database metadata to define** said copy of said set of tablespaces as a set of tablespaces that are used to store said data for at least one of said one or more database objects."*

No combination of Kornelson and Thomson teaches or suggests the quoted feature.

The Office Action relies on column 12, lines 1-15 to allegedly teach the quoted feature. However, the cited passage is part of a general description of a computing environment in which Kornelson's approach may be used. There is no mention in the cited passage of target databases, tablespaces, target database metadata or any equivalent element thereof.

In the Response to Arguments section, the Office Action states,

*"In this case **metadata is simply data about data** and almost all of the data used in either reference would classify as metadata. Moreover the disclosure of Kornelson clearly indicate incorporating and storing multiple copies..."*

Even if Kornelson and Thomson describe data that may be considered metadata, neither reference describes metadata that defines tablespaces used to store database objects in the database, as claimed. As explained above, neither Kornelson nor Thomson teaches or suggests tablespaces, and thus, neither reference teaches or suggests metadata that defines tablespaces to store database objects. The above quoted Office Action response alleges that Kornelson suggests incorporating and storing multiple copies of some unnamed item, but does not explain how incorporating and storing multiple copies of some unnamed item teaches target database metadata that defines tablespaces for storing database objects.

Applicant has identified several features of Claims 100 and 116 that are not taught or suggested by Kornelson and Thomson, alone or in combination. Therefore, Claims 100 and 116 are patentable under 35 U.S.C. §103(a) over the combination of Kornelson and Thomson. Reconsideration and withdrawal of the rejection is respectfully requested.

#### **Claims 108 and 124**

Claims 108 and 124 recite features that are very similar to the quoted features of Claims 100 and 116:

*“wherein said source database metadata identifies a set of tablespaces that store data for the one or more database objects to be transported, and said set of tablespaces is in a format that is understandable by the target database;”*

This claim feature is identical to a claim feature in Claims 100 and 116 that was shown above to be patentable over Kornelson and Thomson.

*“modifying said target database metadata to define a copy of said set of tablespaces as a set of tablespaces that are used to store said data for at least one of said one or more database objects.”*

This claim feature is very similar to the claim feature recited in Claims 100 and 116.

Neither Kornelson nor Thomson, and thus, no combination thereof, describes modifying target database metadata to define a copy of tablespaces to be the set of tablespaces that are used to store data for one or more database objects. The Office Action states that Claims 108 and 124 are rejected for the same reasons as for Claims 100 and 116. Thus, the arguments given above that traverse the rejection of Claims 100 and 116 also traverse the rejection of Claims 108 and 124. Therefore, Claims 108 and 124 are each patentable under 35 U.S.C. §103(a) over the combination of Kornelson and Thomson.

Reconsideration and withdrawal of the rejection is respectfully requested.

### **Dependent Claims**

Each of the claims not discussed thus far is directly or indirectly dependent on one of the independent claims that have been shown above to be patentable over the combination of Kornelson and Thomson. The dependent claims are patentable over the combination of Kornelson and Thomson for at least the same reasons as for their independent base claim by virtue of their dependency. Therefore, each of the dependent claims is patentable under 35 U.S.C. §103(a) over the combination of Kornelson and Thomson. Reconsideration and withdrawal of the rejection is respectfully requested.



In addition, each of the dependent claims introduces one or more additional features that independently render it patentable. However, due to the fundamental differences already identified, to expedite the positive resolution of this case a separate discussion of those features is not included at this time.

### III. CONCLUSION

For the reasons set forth above, Applicant respectfully submits that all pending claims are patentable over the art of record, including the art cited but not applied. Accordingly, allowance of all claims is hereby respectfully solicited.

If any applicable fee is missing or insufficient, throughout the pendency of this application, the Commissioner is hereby authorized to charge any applicable fees and to credit any overpayments to our Deposit Account No. 50-1302.

The Examiner is respectfully requested to contact the undersigned by telephone if it is believed that such contact would further the examination of the present application.

Respectfully submitted,

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